

In re Patent Application of  
Daniell  
Serial No.: 10/519,820  
Filed: 12/30/2004

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**In the Claims**

Please substitute the claims as set forth below in a complete listing. Language added is shown underlined and language deleted is shown in strike through or enclosed in brackets. The amendments include no new matter and are fully supported in the application as filed.

1.(currently amended) A vector for transforming a plastid genome, said vector comprising as operably-linked components a first flanking sequence, a DNA sequence coding for an insulin-like growth factor-1 (IGF-1) which is capable of expression in said plastid genome, and a second flanking sequence, and wherein said first and second flanking sequences are substantially homologous to sequences in a spacer region in said plastid genome.

2.(previously presented) The vector of claim 1, wherein the DNA sequence coding for the IGF-1 is a synthetic IGF-1 (IGF-1s) and contains approximately 60% adenine and thymine nucleotides.

3.(currently amended) The vector of claim 1 wherein said plastid genome is contained in a chloroplast.

4.(previously presented) The vector of claim 1 , further comprising a regulatory sequence containing a promoter operative in said plastid genome.

5.(previously presented) The vector of claim 1, wherein said DNA sequence is according to SEQ ID NO:2.

In re Patent Application of  
Daniell  
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6.(previously presented) The vector of claim 4, wherein said regulatory sequence comprises psbA 5' and psbA 3' elements.

7.(previously presented) The vector of claim 4, wherein said regulatory sequence further comprises a 5' UTR capable of providing transcription and translation enhancement of said DNA sequence coding for IGF-1.

8.(previously presented) The vector of claim 4, wherein said regulatory sequence further comprises a 3' untranslated region (UTR) capable of conferring transcript stability to said IGF-1.

9.(original) The vector of claim 1, wherein said first flanking sequence is trnL, and wherein said second flanking sequence is trnA.

10.(currently amended) The vector of claim 1, wherein said first and second flanking DNA sequences are ~~substantially homologous to sequences in a spacer region of said plastid genome and are conserved in the plastid genome.~~

11.(currently amended) The vector of claim [[10]] 1, wherein said spacer region is a transcriptionally active spacer region.

12.(previously presented) The vector of claim 9, wherein said trnL and trnA provide for homologous recombination to insert an IGF-1 into an inverted repeat region of a chloroplast genome.

In re Patent Application of  
Daniell  
Serial No.: 10/519,820  
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13.(currently amended) The vector of claim 1, wherein said DNA sequence coding for IGF-1 is inserted into ~~a single copy~~ an inverted repeat region of said plastid genome.

14.(original) The vector of claim 7, wherein said 5' UTR is a 5' UTR of psbA.

15.(original) The vector of claim 8, wherein said 3' UTR is a 3' UTR of psbA.

16.(original) The vector of claim 1, further comprising a DNA sequence encoding a selectable marker.

17.(original) The vector of claim 16, wherein said selectable marker is an antibiotic-free selectable marker.

18.(original) The vector of claim 17, wherein said antibiotic-free selectable marker is Betaine aldehyde dehydrogenase (BADH).

19.(previously presented) The vector of claim 16, wherein said DNA sequence encoding a selectable marker encodes an antibiotic resistance selectable marker.

20.(original) The vector of claim 19, wherein said antibiotic resistance selectable marker is aadA.

21.(previously presented) A method for producing IGF-1, said method comprising integrating the vector of claim 1 into a plastid genome of a plant cell and growing said plant cell to thereby express an IGF-1 product encoded by said vector.

In re Patent Application of  
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22-27.(canceled)

28.(previously presented) A plant transformed with the vector of claim 1.

29.(original) A progeny of the plant of claim 28.

30.(original) A seed of the plant of claim 28.

31.(canceled)

32.(previously presented) The plant of claim 28, wherein said plant is an edible plant suitable for consumption by a mammal.

33.(previously presented) A plant containing at least one chloroplast transformed with the vector of claim 1.

34.(previously presented) A plant having one or more leaves containing plastid genomes transformed with the vector of claim 1.

35-38.(canceled)